On August 2, Woodward, having just recovered from a surgical operation, journeyed to Moyard, in company with his friend Mr. W. Watson, F.R.S., assistant professor of physics in the Royal College of Science, who had before accompanied him on similar occasions. On Sunday, September 15, after spending the day with their friend Mr. Allies, resident land-owner of Inishbofin and other adjacent islands of the Galway seaboard, on the return journey and within sight of land their boat was capsized by a sudden squall. While Watson and the fisherman in charge managed with extreme difficulty to reach the shore, Woodward, though a good swimmer, sank and entirely disappeared, and although every effort was made to recover the body, it was not brought to the surface till September 27.

He was laid to rest on Sunday, September 29, in the peaceful little Protestant churchyard at Moyard, in the presence of his two sisters, Mr. Watson, Mr. Holt, of the Irish Fisheries Board, and a few of his devoted friends. One reflects with sorrow that circumstances should have combined to remove from the world of action before he was thirty-six a man so universally esteemed. We revere his memory as that of an earnest and original worker, loving and sympathetic, whose self-sacrificing nobility of character, critical capacity, and devotion to the cause of science will long be remembered by the many friends who mourn his loss. G. B. H.

NOTES.

THE Harveian Oration of the Royal College of Physicians will be delivered by Dr. Norman Moore on Friday, October 18.

WE regret to have to record the death, at the age of sixty-nine, of M. R. Koenig, of Paris, well-known for his researches in acoustics, light and heat.

THE *Journal of Botany* records the death, from cholera, in India, on September 14, of a promising young botanist, Mr. William West, at the age of twenty-six. Mr. West had passed a distinguished career at the Royal College of Science, where he obtained the Forbes medal for botany, and at Cambridge, though greatly marred by ill health. He had devoted himself chiefly to the study of freshwater algæ, and had gone to India as biologist to an Indigo Planters' Association.

THE ship *Discovery*, engaged on the British exploring expedition in the Antarctic regions, arrived at Cape Town on October 3. After coaling the *Discovery* will proceed to Simons Bay and thence direct to Lyttelton, not calling at Melbourne in order to save time.

SPEAKING at Upsala to the Swedish Geographical Society on Wednesday of last week, Prof. Nordenskjöld announced that the Swedish South Polar Expedition would be ready to start soon after the 8th inst. After reaching the Falkland Islands, where a depôt will be established, the expedition will continue its voyage southwards. After making their way as far south as possible, the explorers will look for a spot suitable for wintering in. The ship, with three geologists on board, will then return to the Falkland Islands, whence scientific excursions will be conducted throughout the winter. The expedition will probably return to Sweden at the beginning of 1903.

IT is announced in the German semi-official newspapers that the German Government has again placed at the disposal of the Chinese Government the astronomical instruments which were removed from Peking by the German contingent. The Chinese Government has replied that in view of the inconvenience and difficulties which would be involved in conveying the instruments back to China and placing them in their former position it declines the offer.

THE resignation of Dr. Purser, King's Professor of the Institutes of Medicine in the School of Physic, Trinity College, Dublin, is announced. In 1899, on the completion of the twenty-fifth year of his professorship, Dr. Purser's past pupils, in token of their appreciation of him and his services, founded the "John Mallet Purser Medal" for award yearly in the School of Physic to the candidate who obtains the highest marks in physiology and histology at the Half M.B. examination. Prof. Purser's decision has been arrived at, not on account of ill-health or failing energy, but, as the *British Medical Journal* understands, in order that with the increased laboratory accommodation which the Board of Trinity College has provided for the teaching of physiology and histology his successor may have the advantage of equipping the laboratory and organising the work on the more extended basis.

A REUTER telegram, dated October 7, gives further particulars as to the progress of the campaign in Freetown, Sierra Leone, of the Liverpool School of Tropical Medicine against mosquitoes. Up to September 17, 6500 houses had been cleared by Dr. Logan Taylor and his assistants of the receptacles in which the Culex mosquitoes breed, and draining operations against the Anopheles mosquitoes are being pushed forward as much as the rain will allow. In addition to fifty other men employed on the operations of the expedition, two men are specially employed to look constantly after the centre of the town, where the offices, warehouses, and European houses are. The Governor, Sir Charles King Harman, is giving every assistance. Dr. C. W. Daniels, medical superintendent of the London School of Tropical Medicine, who was attached to the expedition and has been studying Dr. Taylor's work at Freetown, has now returned to England. In a report of his observations, addressed to Major Ross, he says:—"In my opinion your efforts have already been crowned with a large degree of success, as there has been a noteworthy diminution in the number of the two first genera of mosquitoes, Anopheles and a kind of Culex, found in the houses. The number of breeding ground has been enormously diminished."

AT the International Congress of Physiologists recently held at Turin a noteworthy tribute of esteem was paid to Sir Michael Foster on his resigning the presidency to his successor, Prof. Angelo Mosso. This consisted in the presentation of a plaque, of which we reproduce (from the *British Medical Journal*) the inscription, granting him the unique distinction of Honorary Perpetual President of the Congress. The wording on the plaque is as follows:—

CONVENTUS PHYSIOLOGORUM INTER-
NATIONALIS QUINTUS HOC DIE VIRUM
ILLUSTRISSIMUM SENIOREM
MICHAELEM FOSTER
PRAESIDEM HONORARIUM PERPETUUM CONVENTUUM
PHYSIOLOGICORUM INTERNATIONALIUM CREAVIT

CONVENTUS NOSTRI GRAVISSIMI VIRI DOCTI AUCTORITA
TE EIUSDEMQUE STUDIO STRENUO INTEGRE FLORENT
FOSTERO CATALOGUM SCIENTIARUM NATURALIUM QUO
NEMO IAM NATURAE INDAGATOR CARERE POTEST
DEBEMUS GRATIA SIT HONOSQUE PROPUGNATORI
NOSTRO! NOMINE CONVENTUUM PHYSIOLOGICORUM
INTERNATIONALIUM CONVENTUS QUINTI PRAESES
ANGELUS MOSSO.

AUGUSTAE TAURINORUM AD XV KAL. OCT. A. MCMI.

THE Hanbury gold medal for 1901 was presented on the 1st inst. to Dr. George Watt by the president of the Pharmaceutical Society. This medal, which was established as a memorial to Daniel Hanbury, is awarded biennially for high excellence in the prosecution or promotion of original research in the chemistry and natural history of drugs, and the council of the Pharmaceutical Society are the trustees of the memorial fund.

The sixtieth anniversary of the foundation of the Pharmaceutical Society has just been celebrated by the presentation of a badge of office to be worn by successive presidents of the Society. An illustration of the badge appears in the current issue of the *Pharmaceutical Journal.*

An expedition is about to be despatched to Christmas Island, under the auspices of the London School of Tropical Medicine, for the purpose of investigating beri-beri. The leadership of the expedition has been accepted by Dr. H. E. Durham, who will join the s.s. *Islander* at Port Said on or about October 16. The inquiry will probably extend over a period of twelve months.

Sir Francis Lovell, Surgeon-General of Trinidad, will, according to the *Hospital,* leave England during the present month on a mission to tropical and other countries on behalf of the London School of Tropical Medicine. Lord Brassey will preside at a meeting at the Royal United Service Institution on October 16 to deliver an inaugural address on the opening of the third winter session of the school and to give a send-off to Sir F. Lovell.

The return of Dr. H. F. Knowlton, of the U.S. Geological Survey, from a trip through the John Day Basin, Oregon, is noted in *Science.* The special object of the expedition was to secure collections of fossil plants, and of the vertebrate fauna of the neighbourhood, and much valuable material has, it is reported, been obtained.

Magnetic observatories are being established under the auspices of the U.S. Coast and Geodetic Survey at Sitka, Alaska and in Honolulu.

A course of six popular science lectures for young people, entitled "Peeps into Nature's Secrets," will be delivered at the Kensington Town Hall on October 17, 24, 31, November 14, 28, and December 5. Particulars as to the subjects of the lectures and the names of the lecturers are to be found in our advertisement columns.

Free popular science lectures will be delivered in the museum of the Whitechapel Free Library as follows:—November 12, at 8 p.m., "The Faroe Islands and Iceland," by Prof. C. Lloyd Morgan, and December 11, at the same hour, "The Instincts and Intelligence of Animals," by Lord Avebury. In connection with the course, Dr. T. K. Rose lectured on Tuesday last on "Alloys, and what we know about them."

The *Athenaeum* states that the Berlin Königliche Akademie der Wissenschaften and the Danish Academy at Copenhagen have decided to prepare a collection of all the medical works of antiquity under the title of "Corpus Veterum Medicorum," and will cause a thorough examination to be made of all libraries, Oriental and European, which are likely to contain MSS. dealing with medical subjects.

A meeting of the Royal Microscopical Society will be held on Wednesday, October 16. A paper on the fungi found on germinating farm seeds will be read by Miss A. Lorrain Smith; it will be preceded by an exhibition of mounted specimens of marine zoological objects by Mr. C. L. Curties.

A very successful meeting of the British Mycological Society was held at Exeter from September 23 to 28, when several scarce specimens of fungus were obtained. At the evening gatherings papers were read by the president (Prof. H. Marshall Ward), Miss A. Lorrain Smith, Dr. C. B. Plowright, and Mr. B. T. P. Barker.

The Paris correspondent of the *Times* states that the French Post Office has decided to print upon letters the hours of collection numbered, as in Italian and other railway time-tables, from 1 to 24, or rather to 0, which will signify midnight.

According to the *Lancet,* the New York City Board of Health has adopted resolutions to the effect that the officers of "public institutions, hospitals, homes, asylums, &c., be required to report all cases of malarial fever which come under their observation, giving the name, age, sex, occupation and present address of the patient," and "also information as to whether the attack is a primary infection or a relapse, and the address where the disease was probably contracted"; also "that all physicians in the city of New York be requested to furnish similar information in regard to patients suffering from malarial fever under their care."

Dr. Adolph Gehrmann, director of the Chicago City Laboratory, and Dr. W. A. Evans, of the Columbus Medical Laboratory, have devised a plan of investigation, the main feature of which is to make the experiment with lupus. They hold that just as satisfactory a test can be obtained by inoculating the skin of a human being with the bacillus from an animal as could be got from experiments with pulmonary tuberculosis, with the great advantage that there is no risk to life. Preparations are being made for the experiments, and two persons have already consented to be inoculated.

Scientific visitors to Ceylon, and botanists generally, will be interested to know that a small residential laboratory has been opened at the Hakgala Botanic Gardens, near Nuwara Eliya, at an elevation of 5600 feet above sea-level. The laboratory is a branch of the Peradeniya institution, described in Nature, November 9, 1899, and consists of a small building containing a working room 21 feet × 12½ feet, a living room, two bedrooms, kitchen, &c. The climate is temperate, fires being required in the evenings at least. The botanic garden itself is very beautiful, and occupies an unrivalled position for the study of equatorial hill vegetation, for on one side there are jungles stretching for 25 miles or more into the wet region of the hills, on the other grassy plateaux (patanas, *cf.* Pearson in *Journ.* Linn. Soc., 1899), reaching for an equal distance into the dry region, and extending from 3000 to 7000 feet above sea-level. The garden itself contains both jungle and patana reserves of several hundred acres.

The *Daily News* of October 7 contains a long interview with Mr. Cheesewright on the scheme for constructing a high-speed electric railway between London and Brighton. The system proposed to be adopted is not described, but it is stated that the monorail, of which so much has been heard of late, is not to be used and that each car will carry its own motor. A speed of nearly 90 miles an hour is aimed at, so that the whole journey of 47 miles will only occupy 32 minutes. This high speed is to be made possible partly by having no intermediate stations, and partly by avoiding all curves and gradients by tunnelling wherever hills occur along the route. In addition to the benefit conferred by a half-hourly service of express trains, the public is to be attracted by the cheapness of the fares. The Bill will, without doubt, meet with serious opposition in Parliament from the London, Brighton and South Coast Railway, but we wish the promoters of the scheme every success. We feel sure that the public have only to be taught, by a few striking examples, the immense improvements that electric traction can effect in railway travelling to insist upon its adoption in suitable cases by our existing steam railroads. It is only by healthy competition of the kind that such railways as this will introduce that it will ever be possible to eradicate the often very primitive ideas of comfort and convenience that seem to be possessed by the great railway monopolists; and we hope, and believe, that it will be the function of electric traction to produce as great a change in the comfort of travelling in the present century as did steam railways in that which has just closed.

THE *Electrician* announces that the Hon. A. Lyttelton has been appointed by the Board of Trade as arbitrator to settle the dispute between the Metropolitan and District Railway Companies as to the electrical equipment of the Inner Circle. The disagreement has been long and bitter, and, as the *Electrician* points out, has not only unnecessarily delayed the improvement of the Inner Circle, but has also created an impression that electrical engineers are undecided upon the question of the most satisfactory system of electric traction. That this is true in its broadest sense is no doubt the case, but there are many thoroughly satisfactory systems from which to choose, and it is to be hoped therefore that it will not now be long before one is selected and the alteration of the Inner Circle begins in real earnest.

THE New York *Electrical World and Engineer* for September 28 contains a long article descriptive of the Cooper-Hewitt mercury vapour lamp. A brief description of this lamp was given in NATURE (May 9, p. 39) at the time it was first exhibited in America. The present article is founded on the contents of ten patents just issued to Mr. P. Cooper-Hewitt, and describes in considerable detail the construction and manufacture of the lamps. The chief difficulty met with is apparently in starting the lamp; it is found, however, that a small amount of sulphur introduced into the tube (as sulphide of mercury) makes it much easier to overcome the initial high resistance, but even with this addition a transformer or induction coil is still needed. Once lighted, the lamp is said to burn steadily on 100-volt or 200-volt circuits. The unpleasant colour of the light from mercury vapour can be cured, according to the inventor, by the use of nitrogen in the lamp, this adding the necessary red rays. When originally introduced, the consumption of energy was given. as only half a watt per candle, a value which is astonishingly small. We await, therefore, with the greatest interest some account of the practical performance of the lamp; unfortunately, it is often a big wait from the patent to the commercial lamp, and it can only be hoped that in this case the time will not be over long.

THE general report on the operations of the Survey of India for the year 1899-1900 shows that the total area triangulated was 41,110 square miles, including 16,000 square miles triangulated in connection with reconnaissance surveys, and valuable scientific observations were effected in the determination of latitudes. The Government of India, in a resolution reviewing the report, notice with interest the large addition to the geographical knowledge of Yunnan and the north-eastern frontier, and acknowledgment is made of the efficient way in which the work of the department has been carried on.

SOME stir has been made in connection with "Kent coal" by the proving in another boring at Dover of certain coal-seams which in reality were discovered some twelve years ago. The original coal-boring was commenced as far back as 1886, and a depth of more than 2000 feet was ultimately reached. The fact that another boring in the immediate neighbourhood has been carried to a depth of 1194 feet is of no particular importance. What is required is that the shaft should be completed down to the workable coal, and the information with regard to this (given in the *Financial Times* of October 4) is that it is hoped to bring up coal "in about fifteen months' time." That the existence of the "coal-field" has been proved "beyond reasonable doubt" will not be questioned; the extent of it remains to be proved. There may be small isolated tracts of faulted Coal Measures, or a continuous field extending ten miles or more.

THE Geological Survey of Egypt has just published an account of Dakhla Oasis by Mr. Hugh J. L. Beadnell. This oasis lies to the south of that of Farafra, an account of which was previously published (NATURE, August 8). It is by far the most important of the four great oases of the Libyan Desert, on account of the number of its inhabitants, the extent of its cultivated lands and palm groves, and the copiousness of its water-supply. The water-supply is derived from an underground bed of sandstone, which is never visible. This is overlain by a bed of red clay and underlain by black clay. The water appears to flow to the surface entirely through artificial wells and bore-holes, ancient and modern. Many of these artesian wells were made during the Roman occupation of the country, some are still in thorough working order, and they are as deep as those bored recently, about 140 metres. The temperature of the waters varies from 78° to 102° F., the heat being due to the depth from which they arise and being modified by local conditions. The water-bearing strata belong to the Nubian Sandstone series (Senonian or Upper Cretaceous). They are overlain by a great thickness of soft Danian beds capped by hard white chalky (Danian) limestone. After the hard capping had been eroded further waste proceeded rapidly, and the formation of great depressions, without drainage outlets, has been due mainly to wind erosion.

THE eruptive rocks of the neighbourhood of Ménerville, Algeria, form the subject of an elaborate essay by MM. Louis Duparc and Francis Pearce, to which Dr. E. Ritter has contributed particulars of the geological structure of the country (*Mem. de la Soc. de Physique et d'Hist. Nat. du Genève*, xxxiii. part 2, 1901). Special attention is given to the liparites and dacites and to their relations with the granitoid rocks (tonalites and micro-tonalites). In the same volume, M. P. de Loriol describes some new echinoderms, including *Pygurus* from Cenomanian and *Echinolampas* from Oligocene strata, and a number of recent species of *Astropecten*, &c., from various parts of the world.

IN the *Proceedings* of the Royal Society of Victoria, vol. xiv. part 1 (August, 1901), geology dominates. Various trachytic rocks are described by Mr. J. Dennant, while the older Tertiary mollusca are in course of description by Mr. G. B. Pritchard, who contributes an account of the lamellibranchs (part 2). There is also a short article by Mr. T. S. Hall on the stages of growth in modern trigonias, which exhibit considerable variation both in the shape of their shells and in their ornament.

IN 1895, a gravitational survey of the kingdom of Württemberg was commenced, and ten stations for the purpose were selected in the first instance on the meridian of Tübingen. The first definite results were obtained in 1899. Dr. K. R. Koch now describes the results of redeterminations made by pendulum methods in 1900, and publishes an account of the methods adopted for eliminating errors of experiment and observation. With the exception of one station, the observations of 1899 and 1900 agree to within about two millionths of the observed values.

A DISTRICT which is free from malaria, in spite of the fact that species of *Anopheles* are abundant and all the conditions are favourable to the occurrence of this fever, forms the subject of a paper by Dr. Grassi in the *Atti dei Lincei*, x. 6. The district is that of Massarosa, about eight kilometres from Viareggio. This district is largely given over to rice cultivation, and, among other noteworthy points, Dr. Grassi finds (1) that malaria formerly existed in Massarosa, but has now practically died out; (2) that its decrease has taken place concurrently with the extension of the rice plantations, notwithstanding that these form a breeding ground for the mosquitoes; (3) that the mosquitoes in question have not acquired any special immunity from malaria, seeing that they have been artificially infected by being allowed to bite a malarial patient; (4) that many of the inhabitants spend a portion of the year in infected districts where they frequently take the disease, showing that they likewise are not immune. The only conclusion which Dr. Grassi can draw is that malaria does not necessarily occur even in districts favourable to its propagation, and hence he thinks it probable that the disease may be easy to stamp out in infected districts, especially with the systematic use of wire mosquito nets. But there is quite a possibility that the district of Massarosa may be visited at some future time by a scourge of malaria.

A REPORT on the work done at the observatory of Catania in connection with the international photographic survey of the heavens is contributed by Prof. A. Riccò to the *Atti dei Lincei*, x. 5. Among the difficulties to be contended against in the work, that of developing the negatives in the hot climate of Catania may be noted. Since the beginning of 1897, the total number of celestial photographs taken was 430, including 250 for the catalogue, 78 of the zone traversed by the planet Eros, 6 of the new star in Perseus, 3 of the occultation of Saturn, and 6 of lunar eclipses. In addition, the writer and Prof. Tacchini took 66 photographs on the occasion of the eclipse of May 20, 1900, in Algiers. A number of measurements, embracing 22,435 stars, have been made on the plates by Signori L. Franco and M. Massa, and reduced by Signor Mazzarella. Among the calculations made by Prof. Boccardi, with the assistance of Signori Traversa and Taffara, we note the construction of tables for the differences of precession depending on the different constants of Struve and Newcomb, catalogues of 2200 stars taking account of proper motion and of the constants of Newcomb, and the reduction to the equinox of 1900 of 8000 stars of the zone studied at Catania. Prof. Riccò hopes shortly to commence the publication of the catalogue.

THE *Century Magazine* for October contains a short article on "How to cross the Atlantic in a Balloon," by Prof. Samuel A. King, with an introduction by Prof. Cleveland Abbe. Prof. King deprecates the attempts to solve a problem of this character by means of flying machines or mechanically propelled balloons, and thinks that the secret of success lies in mastering the problem of maintaining the ordinary spherical balloon at any required height by the aid of the drag rope or similar appliances. The author also points out the necessity of overcoming the propensity of the balloon to rise and fall with varying temperature, and suggests the use of a hood as a protection from solar radiation. With proper precautions, Prof. King considers a Transatlantic balloon voyage now quite within the range of feasibility.

WE have received a copy of the Results of the Magnetical and Meteorological Observations made at the Royal Alfred Observatory, Mauritius, in the year 1899. Some of these results were alluded to in our notice of the Annual Report (NATURE, June 6, p. 135). Magnetic disturbances occurred on nineteen occasions. A list of them is given in an appendix; the principal were: January 28–29, February 12–13, May 3–5, and September 26–27. The mean declination in the year 1899 was 9° 32′·89 west. There were only four tropical cyclones in the South Indian Ocean during the year, viz., on January 1–8, March 3–8, November 30–December 3, and December 10–16. This cyclone passed over Mozambique on the 17th; the length of its path (more than 3000 miles) has seldom been exceeded in the Indian Ocean. The barometrical readings at the Observatory were appreciably affected at a distance of more than 800 miles. Twenty-seven seismic disturbances were recorded at the Observatory during 1899. The small number of recorded earthquakes at Mauritius as compared with other countries is noteworthy.

THE origin and birthplace of the Proboscidea have long been a puzzle to students of evolution and distribution, the mastodons suddenly making their appearance in the middle part of the Miocene, without our having hitherto had the slightest clue as to their connection with more generalised types. The puzzle has, in a great degree, been solved by Dr. C. W. Andrews, of the British Museum, who, during a recent visit to Egypt, was fortunate enough, while travelling in the Fayum district in company with Mr. H. J. L. Beadnell, to come across two Tertiary deposits which have yielded a previously unknown vertebrate fauna, a part of which is described by Mr. Andrews in the September issue of the *Geological Magazine*. From the upper beds, provisionally regarded as Lower Oligocene, were obtained remains of a small mastodon-like animal (Palæomastodon), differing from Mastodon by the simpler last molar and by having five pairs of cheek-teeth simultaneously in use. The other remains are from a lower horizon, perhaps Upper Eocene, but possibly rather older. Most remarkable is a primitive proboscidean (Mœritherium), with a nearly full series of front and cheek-teeth, the latter being of a generalised Ungulate type. That this animal is an ancestor of the mastodons and elephants may be inferred from the enlargement of the second pair of incisors in both jaws and the small upper canines. All the six pairs of cheek-teeth were in use at the same time. More problematical are the affinities of a huge Ungulate described as Bradytherium. From the same beds Mr. Andrews obtained a Zeuglodon, previously described by Dames, and also a Sirenian, probably identical with Owen's Eotherium. A description of the reptiles is promised later. The importance of the discovery can scarcely be overestimated. It is noteworthy, in connection with a recent theory, that the fauna is situated in the Holarctic, and not in the Ethiopian, region.

IN their Report to the forthcoming anniversary meeting, the committee of the Natural History Society of Northumberland, Durham and Newcastle-upon-Tyne have to deplore the deaths of three prominent members, namely Lord Armstrong, Dr. Embleton and Mr. R. Howse, the last of whom served the Society so well for many years as curator of its valuable museum. We learn that Mr. E. L. Gill, who has been appointed to succeed Mr. Howse, speaks well of the general state of the collections. The finances of the Society, we are glad to hear, continue in a satisfactory condition.

THE *Bulletin* of the Agricultural College at Tokyo contains a capital investigation by Mr. U. Suzuki on the formation and distribution of theine in the tea plant. The seed contains no theine, but this alkaloid appears during germination even in the dark. The roots and stem contain a moderate amount of theine, the bark very little. It occurs in greater quantity in the dormant leaf-buds, and reaches its greatest development in the young leaves, in which 20 per cent. of the nitrogen is sometimes in this form. In old leaves the quantity is greatly diminished. The theine appears to be specially localised in the epidermis of the leaf. Mr. Suzuki has another paper in the same periodical, on the occurrence of organic iron compounds in plants. The seeds of *Polygonum tinctorium* and *Indigofera tinctoria* yield an ash containing 12 per cent. of ferric oxide. The whole of this iron exists in the seed in organic combination, apparently as a ferro-nuclein. The greater part of the iron in plants probably exists in a similar state of combination.

THE decorative symbolism of the Arapaho, a tribe of Plain Indians belonging to the Algonquin stock, is the subject of an essay by Mr. A. L. Kroeber in the *American Anthropologist* (N.S., vol. iii. 1901, p. 308). In all the examples referred to by the author there is, as there is practically everywhere else, a well-developed symbolism and a conventional decoration, which exist not side by side but in each other. Most primitive decoration, no matter how geometric or simple, has significance, and thus is, visually or ideographically, realistic. This fusion of two differing tendencies (symbolism and decoration) is a rule practically without exceptions. It is universal, because it is necessary. At times, as in European civilisation, the two tendencies become more separated, but the more primitive a people is, the more intimately fused in its art will these two tendencies be. Other tendencies also are still combined with these two in a sufficiently early and rude condition of society. The symbolism of the Arapaho is as ideographic as it is realistic, and is as much a primitive method of writing as it is of artistic representation. The author argues that it is incorrect to assume that symbolism, or any other single motive, accounts for the origin of a design. Thus we come to the conclusion that all search for origins in anthropology can lead to nothing but wrong results. The tendencies referred to are at the root of all anthropological phenomena. Therefore it is these general tendencies, more properly than the supposed causes of detached phenomena, that should be the aim of investigation.

The additions to the Zoological Society's Gardens during the past week include a Black Kite (*Milvus migrans*), European, presented by Mr. J. B. Thornhill; a Diana Monkey (*Cercopithecus diana*) from West Africa, a Yellowish Capuchin (*Cebus flavescens*) from South America, a Fournier's Capromys (*Capromys pilorides*) from Cuba, a Small-clawed Otter (*Lutra leptonyx*), two Bungoma River Turtle (*Emyda granosa*), a Ring-necked Parrakeet (*Palaeornis torquatus*) from India, a Vulpine Phalanger (*Trichosurus vulpecula*) from Australia, two Yellow-winged Parrakeets (*Brotogerys virescens*) from Brazil, a South Albemarle Tortoise (*Testudo vicina*) from the Galapagos Islands, eight Wrinkled Terrapins (*Chrysemys scripta rugosa*) from the West Indies, a Grey Monitor (*Varanus griseus*) from North Africa, a Razorbill (*Alca torda*), British, deposited; a Grey Squirrel (*Sciurus cinereus*) from North America, a Mouflon (*Ovis musimon*) from Sardinia, a Common Rhea (*Rhea americana*) from South America, purchased; eight Golden Orfe (*Leuciscus idus*) from European fresh waters, purchased.

OUR ASTRONOMICAL COLUMN.

Ephemeris of Encke's Comet (1901 *b*).—Herr Ch. Thonberg gives a further ephemeris for following this comet, in *Astronomische Nachrichten*, Bd. 156, No. 3740.

Ephemeris for 0h. *Berlin Mean Time.*

1901.		R.A. h. m. s.		Decl. ° ′
Oct. 10	...	14 19 46	...	−20 11·2
12	...	32 42	...	21 22·9
14	...	45 20	...	22 28·0
16	...	14 57 42	...	23 26·9
18	...	15 9 46	...	24 19·8
20	...	21 32	...	25 7·2
22	...	33 0	...	25 49·3
24	...	44 10	...	26 26·6
26	...	15 55 2	...	26 59·4
28	...	16 5 35	...	27 27·9
30	...	16 15 50	...	−27 52·5

New Algol-type Variable, 78 (1901), Cygni.—Mr. A. Stanley Williams has detected variability in the star, whose approximate position is:—

R.A. = 20h. 18m. 4·0s. } (1855).
Decl. = + 42° 46′·4 }

The measures of brightness were made from photographs obtained with a 4·4-inch portrait lens. Normally the star is about 10th magnitude, falling almost to 12th magnitude at mininum. It appears about a magnitude below normal brightness on a photograph taken 1900 October 21, 13h. 0m. to 13h. 50m. G.M.T.; and minima have also been visually determined on the following dates:—

		h. m.	
1901 Aug. 24	...	14 27	G.M.T.
Sept. 7	...	9 43	
,, 14	...	7 29	

From these data the elements of the star's variation are:—

Minima = 1901 Sept. 7d. 9h. 43m. + 3d. 10h. 49m. E.

For about 3d. 2h. 19m. the star remains constant at 10·0 magnitude. It then diminishes in 3h. 30m. to 12 magnitude, at which it remains for 50m. Recovery to 10 magnitude occurs in 4h. 10m., the whole change occupying about 8h. 30m. (*Astronomische Nachrichten*, Bd. 156, No. 3740).

Photograph of the Spectrum of Lightning.—Prof. Pickering announces that a successful photograph of the spectrum of a lightning flash has been obtained recently at the Harvard College Observatory. The spectrum showed a complicated series of bright lines which have as yet not been individually recognised. No information is at present extant as to the instrument with which this interesting photograph has been taken, but it is to be hoped that the scale is sufficient to ensure accurate determinations of wave-length. For some years back attempts have been made at the Solar Physics Observatory at South Kensington to record the lightning spectrum, using both prisms and gratings in conjunction with short-focus cameras of varying size. Up to the present time, however, no success has been attained, and it is with the greatest interest that the publication of further details from Prof. Pickering will be awaited.

THE ROYAL COLLEGE OF SCIENCE AND THE UNIVERSITY OF LONDON.[1]

I am sorry to have to sound at the outset a note of sadness. We little thought when the end of the session brought release for us all that before we could meet again death would intervene to prevent one of our number from joining his colleagues and friends at the reassembly. It may not be known to every one present that a deplorable accident has deprived the College of one of the most brilliant and popular of the junior members of the staff. Mr. Martin Woodward, demonstrator of zoology, was the younger son of Dr. Henry Woodward, the eminent keeper of the geological department of the British Museum, who is a personal friend of many of us and respected by everybody. United as father and son were, not only by ties of affection but by constant companionship in their scientific pursuits, we can only guess and I cannot express, the severity of the father's loss. All we can do on this sad occasion is to offer to the family of our departed friend our most heartfelt sympathy. Mr. Woodward entered the College as a student in 1882 and gained the Murchison prize and medal. He was appointed demonstrator by Prof. Huxley in 1885, and has since that time worked under the direction of Prof. Howes. Most of us deplore the loss of a genial, kindly and accomplished friend, but science too is the poorer by this unhappy event, for Woodward was well known as a zoologist, and his extensive knowledge, skill as a manipulator and scientific enthusiasm seemed to promise a high place for him among the biologists of his time.

The next announcement that I am permitted to make is of a more cheerful character. Dr. Stansfield, of the metallurgical division, has been appointed professor of metallurgy in the McGill University, Montreal. All students who have come under Dr. Stansfield's influence will, I believe, gladly unite with his colleagues in wishing him a long, happy and distinguished career in his new home across the sea.

By this time it is probably known to most of the students assembled here that the session now gone has seen the last of two of the most eminent members of the staff as professors in the College. In Sir Norman Lockyer we are losing an investigator of the first rank who may be said to have created a branch of science out of the results of his own researches. But apart from his labours in astronomical physics, I feel that the scientific part of the community owes much to Sir Norman Lockyer for the energy with which he has, on so many occasions, defended the cause of science. Whenever a question has arisen of public opinion or public policy involving the position of science, or of scientific men, he has always sounded the right note. You will, I am sure, join with us his colleagues on the council of the

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[1] Address delivered at the opening of the Royal College of Science, October 3, by Prof. W. A. Tilden, F.R.S.